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maintaining that the results were modified by the gaseous impurities of the laboratory in which they were obtained. GUTTENBERG,¹⁰ on repeating his experiments in pure air, finds essentially the same compensatory values of light as he found in his earlier work. GUTTENBERG used the seedlings of *Avena* and *Brassica*, forms much less sensitive to impurities than are legumes, with which RICHTER worked. GUTTENBERG finds in *Vicia sativa*, contrary to RICHTER, that laboratory air does not increase the heliotropic sensitiveness, but in agreement with RICHTER he finds the geotropic irritability lessened. On this point, GUTTENBERG's experiments are much more critical than RICHTER'S.—WILLIAM CROCKER.

Morphology of *Phylloglossum*.—A recent paper by WERNHAM¹¹ represent, a type, at the moment becoming much too common, in which a small basis of imperfectly examined facts is made to serve for large conclusions which are neither clearly nor logically drawn. The author has examined by means of serial sections the anatomy of two specimens of *Phylloglossum Drummondii*. He concludes that the basal leaves of this species (the protophylls of certain authors) are microphyllous, although superficially relatively large in sizes because their traces leave the stele without leaving any gap, as is the case with the Lycopsidea. Concerning the relation of the sporophyll traces to the vascular system of the axis, the account is very obscure, since it is not made clear whether gaps are or are not present. The most remarkable feature of the article is the interpretation of the larger strand which passes off from the crown of the functional tuber toward the tuber of the succeeding year as a leaf trace. It has been regarded by other observers, apparently with good reason, as a branch supply, and the present author adduces apparently no valid evidence why this view of its nature should not continue to be held. On the basis of this imaginative interpretation, he comes to the conclusion that *Phylloglossum* was originally a megaphyllous form, which has become much reduced. It would be possible to prove almost anything with such reasoning as this. It seems highly desirable that morphologists should avoid eccentric conclusions of the nature illustrated by the article here reviewed. Obviously, conclusions of permanent value in regard to leaves or other organs can be reached only in the case where there is no room for doubt as to the morphological category of the structure under discussion.—E. C. JEFFREY.

Classification of conifers.—A new classification of conifers, based upon morphology, geographical distribution, and geological history, is proposed

¹⁰ GUTTENBERG, H. R. v., Ueber das Zusammenwirken von Geotropismus und Heliotropismus und die tropistische Empfindlichkeit in reiner und unreiner Luft. Jahrb. Wiss. Bot. 37:467-492. 1910.

¹¹ WERNHAM, H. F., The morphology of *Phylloglossum Drummondii*. Annals of Botany 24:335-347. figs. 8. 1910.